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Luncheon Talk

by

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President Mayo, Dr. Kantrowitz and members of the American Astronautical Society:

I assume this occasion is not too formal, that the purpose of the exercise is partly to let you look me over and see whether or not you think the President made a good choice, and also partly because there had to be a time set aside to eat.

Since most of the time I have spent in public life has been as a professional person, serving those who were in the senior leadership positions, I have never developed much of a personal sales technique or public relations type of presentation. Therefore, perhaps I can begin by saying that I feel quite inadequate to give you reassurance if you need reassurance, or promises that will meet all your expectations, if you have expectations, but I believe that I can say with some confidence that in making your predictions and projections of policy and program trends, you will not go far wrong if you examine each action taken by the National Aeronautics and Space Administration carefully and assess it as one in a series of institutional decisions that will, within a reasonable degree of probability, trace out an understandable pattern.

I stress the institutional quality we will endeavor to achieve in our decisions, because it is my purpose to serve only as one member of a team, the senior members of which will be Dr. Hugh Dryden, Dr. Robert Seamans, and myself. We will discharge our common responsibilities for leadership in the Space Administration by utilizing the talents of each of us in whatever manner seems best to get on with the work at hand. We do not contemplate a rigid pattern of specific and closely-defined areas of individual responsibility but, rather, expect to operate so

that Dr. Dryden will have more time for development of the rapidly emerging opportunities for productive international cooperation in space science and technology. Dr. Seamans will assume a rather large measure of responsibility for the planning and management of the programs carried out by the Administration.

President Kennedy has designated his Administration as the "New Frontier." For the Space Administration, this means the frontier of science and technology.

Having recently lived in Oklahoma for eight years and having worked with organizations that operate over wide areas of the western part of the country, the ideas inherent in the word "frontier" are not new to me. I have learned something of what it means to live with uncertainty and change as a constant companion. In large parts of the Southwest classified as semi-arid, the climate is not halfway between wet and dry. In many years, agriculture can prosper. But there is an unpredictable quality, a definite hazard to it. Some years it is too wet; some, too dry. Ability to live with uncertainty is a quality enforced by this climate on those who depend on the land. It is the kind of climate on those who depend on the land. It is the kind of climate in which great civilizations have been born, as men overcame great obstacles. It is a climate which helps preserve the frontier tradition, and the desire to extend pioneering into the mid-twentieth century frontiers of science, technology, and change.

Having earlier mentioned that Dr. Dryden will be addressing himself to the problems of international cooperation, and exploring what many new areas of technical advance, such as the meteorological satellite and the communication satellite, can now make possible for common use by many nations, I think you can see that in my mind the new frontier of science and technology for the Space Administration embraces the emerging continents of Africa and South America, and calls for pioneering efforts there that will have to deal with different uncertainties and problems than the pioneering efforts of the new frontier as it operates in the more settled areas of the world. Somehow we must make the kind of critical analysis of each emerging technology that will guide us toward applications to solve problems heretofore insoluble; toward major new means for radical advances in education, communication, and transportation. All this must look forward, on the New Frontier, toward pioneering new and more viable economic social and political institutions.

It is comparatively easy to foresee not only the material benefits of communications and meteorological satellites, but also the profound and extensive contributions that successful international operational systems in these two areas will exert on every phase of life including institutional life. We all know that more accurate weather forecasts have tremendous economic applications for agriculture, for food processing for public utility companies, for air transport and numerous other industries.

Furthermore, the weather has a direct influence on the lives of all of us and we can all benefit by greater knowledge as to what the weather is going to be and, perhaps, what we can do about it.

But there are many other benefits of the exploration of the new frontier of space which we cannot now foresee. Perhaps it is useful to recall previous milestone in man's progress in science and technology. Let us imagine that we were standing on the sand dunes at Kitty Hawk in North Carolina on December 17th, 1903. We would have seen a fragile vehicle, constructed of cloth, wood and wire, make its first flight only a few feet above the ground, at very low speed, and for a very short time. Standing there, could we have assessed the future impact of the airplane on human life? At that time who could have foreseen the amazing increases in speed, altitudes, size, range and safety, and the manifold uses of airplanes in peace and war? What would have been our attitude then toward enlisting public opinion and financial aid from the government, for the support of the development of the airplane?

Today in 1961 we stand before the frontiers of space. No enterprise has so stirred the human imagination as the exploration of this new frontier--new worlds to explore, new vast distances to travel, 3,680 million miles to Pluto, the outermost planet of our solar system, eight years' journey at 50,000 miles per hour. Innumerable problems lie ahead. New knowledge is urgently needed in almost every branch of science and technology.

Today, as citizens, we have the same kind of problems of assessment as 1903 citizens had of why, with what objectives, and how rapidly shall we proceed with the exploration of space. In making these decisions we do not know the ultimate role of space vehicles in transportation, communication or in any other field, any more than the few spectators of the early Wright Brothers' flight knew of our present jet transports which make the world a neighborhood. We must proceed in confidence that every advance in science and technology has been a source of potential benefit to human welfare, when wisely used by man. We must move forward in confidence that men who can engage in such challenging and vast enterprises can grow to the intellectual and spiritual stature to use them wisely.

The new frontier of space confronts us at a time when the last frontiers of the surface of the earth are yielding to the perseverance and ingenuity of man. The polar regions have yielded their knowledge, and the highest mountains and the depths of the ocean have been traversed by man. Man will without a doubt explore space, driven on by that irresistible urge that has led him to explore the other areas of our universe. Probably everyone of you has flown in a jet transport at high altitude, an

external environment of extremely low pressure and temperature, in which man could survive only for seconds if unprotected. As you have witnessed, man has had the ingenuity to provide his own environment, to make himself at home, not only in a jet transport but in the jungle, the desert, the high mountain, or in the arctic and antarctic. Today "normal" environment is the one that he creates for himself.

The environment of space will be mastered in the same fashion. The astronaut, in his air-conditioned pressure suit, will have the same protective environment as the arctic explorer or the winter sportsman in the high Sierras. There will be unprecedented problems, hazardous and strange difficulties, but these are to be met as pioneers on our planet have always met them, with planning and preparation and with fortitude and courage. I have a deep conviction that man will succeed in his resolve to establish himself in space, and that the exploration of space will bring great practical benefits for the peaceful pursuits of mankind.

NASA's program includes the first step in the manned exploration of space, Project Mercury, for the orbital flight of man about the earth and his safe return. This project is well along in development and needs little description here. I do wish to emphasize however, that the astronaut in Project Mercury is not a passive biological specimen going along for a ride. Provision is made for him to perform the functions of a pilot, flight engineer, navigator, and radio operator. Hence his training for orbital flight will be completed by ballistic flights using a Redstone booster to an altitude of 125 miles and to a distance of 200 miles down range, giving him launch and recovery experience, and five and one-half minutes of weightlessness. We expect the first training flight to occur soon and the first orbital flight during the present calendar year.

Since I became administrator I have been giving much attention to the plans that should be made for continuing the manned exploration of space beyond Project Mercury. As you know, NASA operates under a plan for ten years ahead, which is revised annually. This plan looks forward to such milestones as a manned space station orbiting the earth for a considerable period of time, followed by manned flights around the moon and return, and, in time, to manned landings on the moon. I have been made aware of the major technical problems foreseen by scientists and engineers, such as the radiation problem connected with the Van Allen belt and with solar flares, the effect of the weightless environment on man and machine when experienced for long periods, and the problem of supporting life in a completely closed environment for long periods of time.

There barriers, like the past sonic barrier, and thermal barrier, will undoubtedly evaporate as man acquires the knowledge and experience necessary to deal with them. Those who wish to explore a new frontier must not be frightened by the difficulties. The task may be difficult, and require much time. In our review of the estimates submitted to the Congress by the last administration we are giving careful consideration to the rate and scale at which we should proceed toward the next intermediate goal of manned space flight, that is the manned space station.

We, at the Space Agency feel deeply that these decisions can and should not be made purely on the basis of technical matters. It is our responsibility, together with other responsible citizens, to assess the worthwhile social objectives of our space program and to study our space effort in the context of our broad national and international goals. We at NASA expect to help meet the present need to synthesize the contributions of our technical experts, our business men, our bankers, our public officials, our spiritual leaders, to integrate the available knowledge and thinking into great enterprises for all mankind.